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Keiji TAKEMURA

INTRODUCTION

Late Cenozoic sediments exposed widely along the Rio Magdalena, Colombia. Especially, La Venta area in the upper Magdalena Basin is famous for the occurrence of fossil monkey. The author reported the geology in this area (Takemura, 1983), and present here sedimentary environments of deposits including fossil monkey.

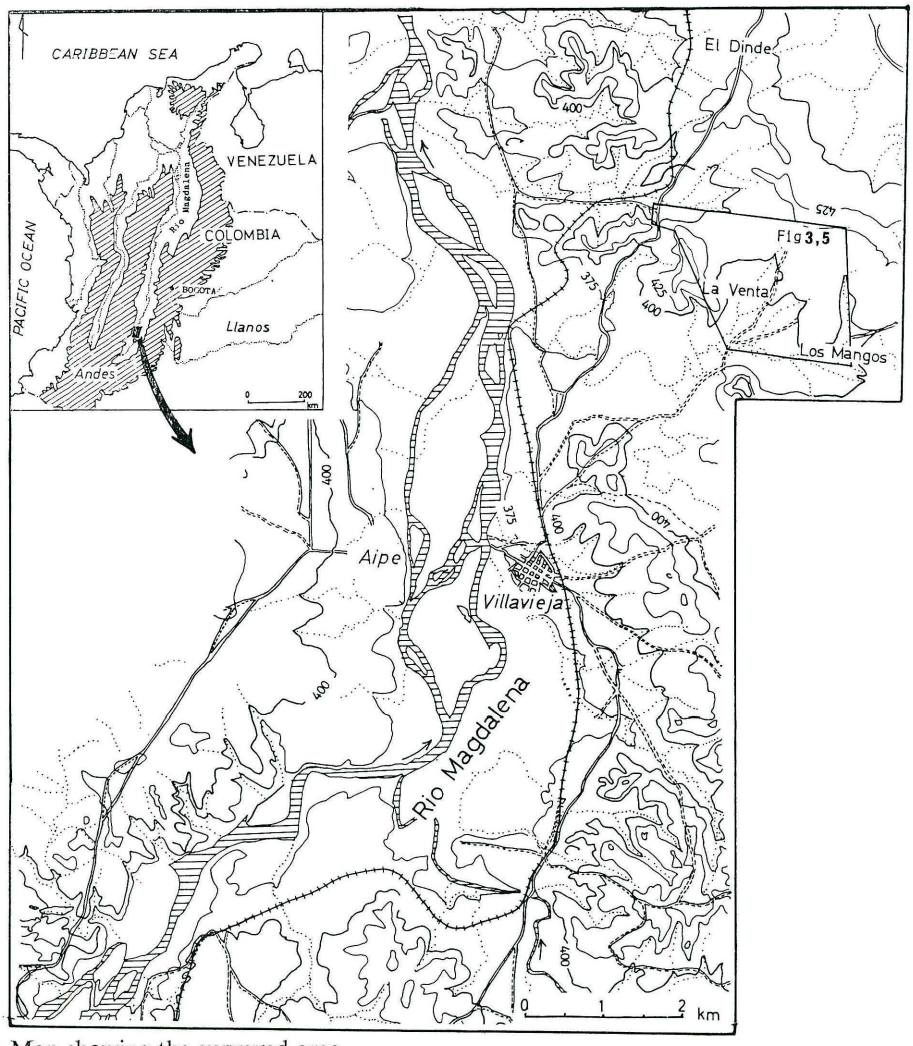

Fig. 1. Map showing the surveyed area.

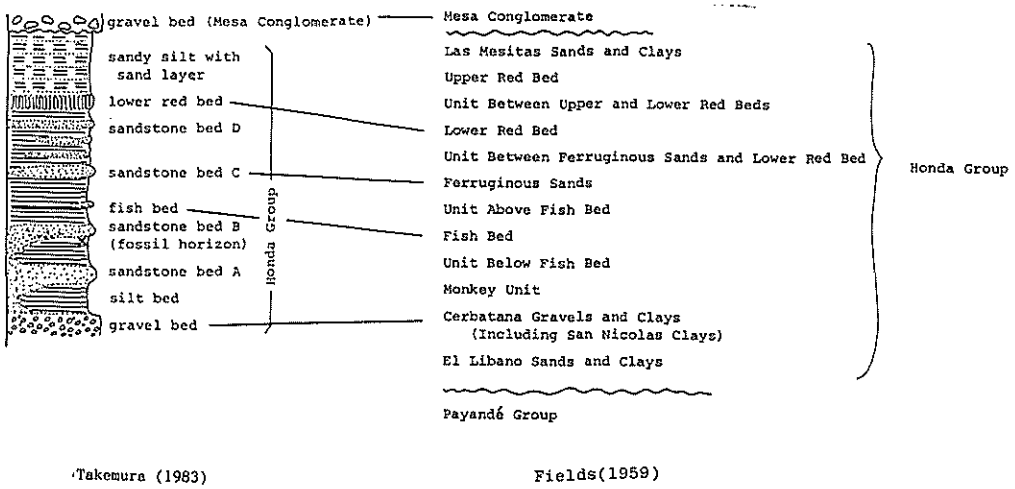

Fig. 2. Stratigraphy of the Miocene Honda Group in the La Venta Badland.

GEOLOGICAL SETTING

The surveyed area is hills located at the east side of the Rio Magdalena in the upper Magdalena Basin between the Cordillera Central and Oriental (Fig. 1). Altitude in this area ranges from about 400 m to 500 m above sea level.

In the upper Magdalena Basin, as much as 12,000 m of non-marine Cenozoic deposits are preserved (Van Houten and Travis, 1968), and four major alternations of coarse- and fine grained deposits are recognized. In the surveyed area, the Miocene Honda Group (the third cycle) and the Mesa Formation (the fourth cycle) are distributed.

Fields (1959) described precisely the geology in the La Venta Badland. According to his study, the Honda Group is about 700 meters thick, and is subdivided into three parts. The lower part consists mainly of siltstones with sandstones (El Libana Sands and Clays). The middle part is composed mainly of pebble to cobble conglomerates interbedding coarse-grained sandstones and siltstones (Cerbatana Gravels and Clays). In the upper part, lithology is characterized by the variable succession of sandstones, siltstones, claystones and mudstones with two characteristic red beds in the uppermost part (Fig. 2).

Takemura (1983) reported the geology of the upper part of the Honda Group in the La Venta Badland in connection with occurrence of fossil monkey (Fig. 2).

SEDIMENTOLOGICAL DATA AND CONSIDERATION

In 1979, the upper dentition of a ceboid monkey was discovered and the excavation researches at that site (Kioto Site) were carried out in 1981, 1982 and 1984. The occurrence horizon of fossil monkey is siltstone lens below the sandstone B (Takemura, 1983). In order to analyze the sedimentary environments of deposits including dentitions of monkey, sedimentological data were collected around the Kioto Site (Fig. 3).

At first, lateral lithologic change (thickness and lithology) is shown in Fig. 4. Around loc. d and z, sandstone A is the thickest, and is finer to west and to east. Sandstone B is the thickest around loc. KS 1, and is finer to west.

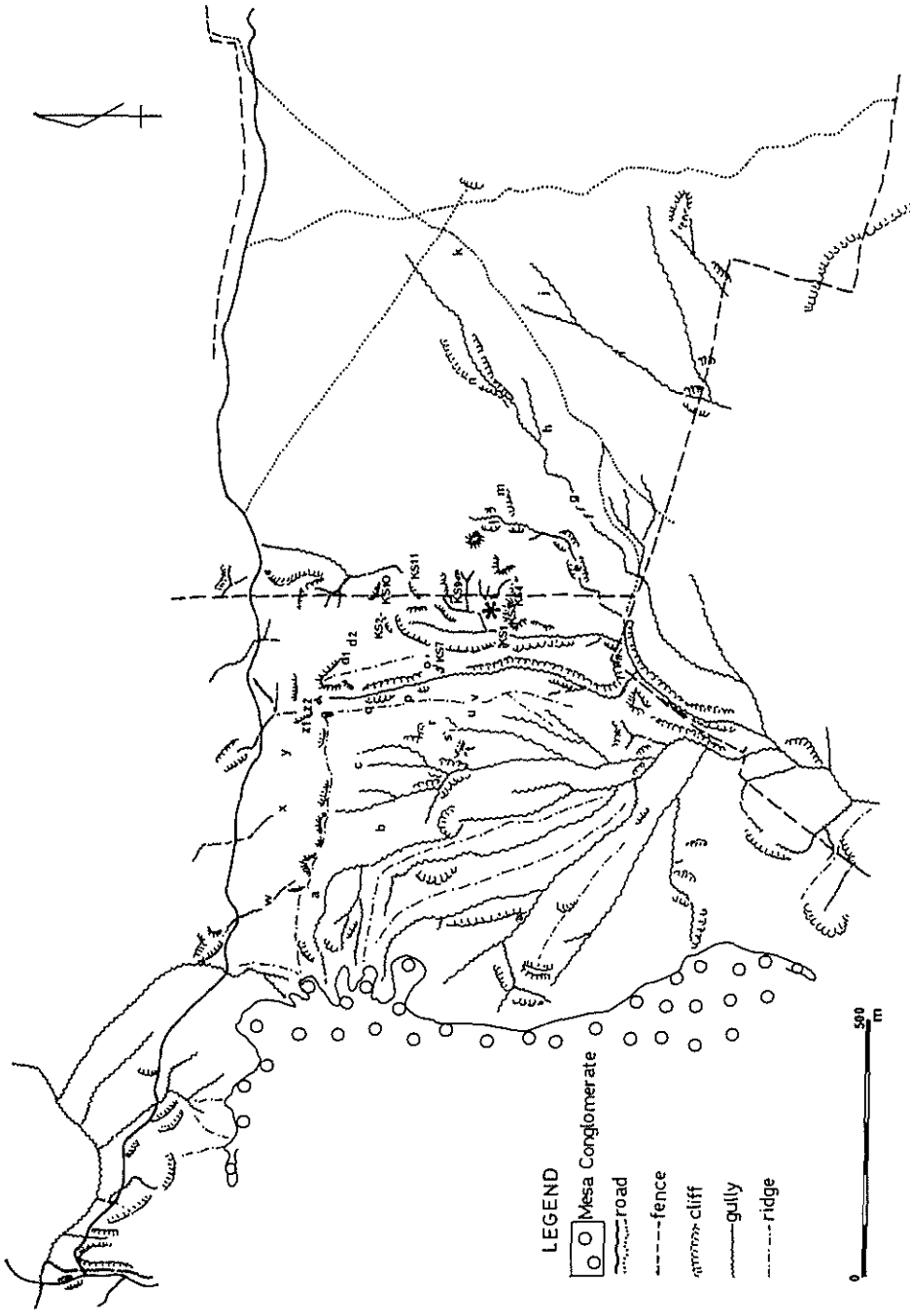

Fig. 3. Locality map.

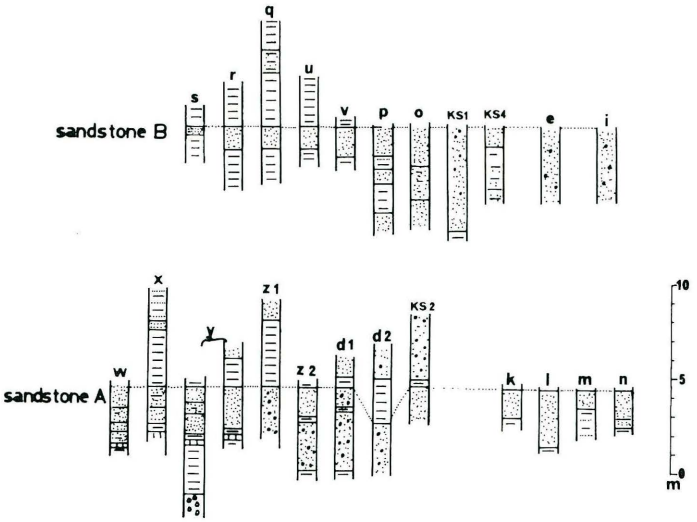

Fig. 4. Columnar sections of sandstone A and B at each outcrop.

Table 1. Paleocurrent directions deduced from torpedo-like shape concretions.

Locality	Horizon	Number	Mean direction of paleocurrent
KS1	sandstone B	15	121
KS2	sandstone B	6	67
KS7	sandstone B	4	118
KS8	sansdtone B	3	97
KS9	sandstone A	12	157
KS9	sandstone A	12	166
KS9	sandstone A	18	168
KS10	sandstone A	1	135
KS11	sandstone A	4	108
a	sandstone B	1	135
b	sandstone B	5	55
c	sandstone B	2	57
d	sandstone B	5	65
e	sandstone B	2	120
f	sandstone B	3	140
g	sandstone B	3	155
i	sandstone B	3	155
o	sandstone A	5	142

Palaeocurrent directions are represented by anticlockwise angle from east direction.

Paleocurrent directions were mainly deduced from the direction of torpedo-shape concretions (Fig. 5 and Table 1). Paleocurrent direction of sandstone A is from east at loc. KS 9, and that direction is observed at loc. o. At loc. KS 10 and 11, paleocurrent direction is from SE to NW. Around Kioto Site, sandstone A has two paleocurrent directions.

Paleocurrent directions of sandstone B indicate an arc shape around Kioto Site. At loc. i, paleocurrent direction is about from east. At loc. f and g, paleocurrent direction is from ESE. At loc. KS 1, direction is from SE. At loc. KS 7, direction is from SSE, and at loc. KS. 8, direction is from south. At loc. KS 2, paleocurrent turns to the direction from SSW. This fact indicates characteristics of meandering river. Moreover, at KS 1, foreset cross bedding sandstone is observed at a right angle to main paleocurrent direction (Fig. 6). These

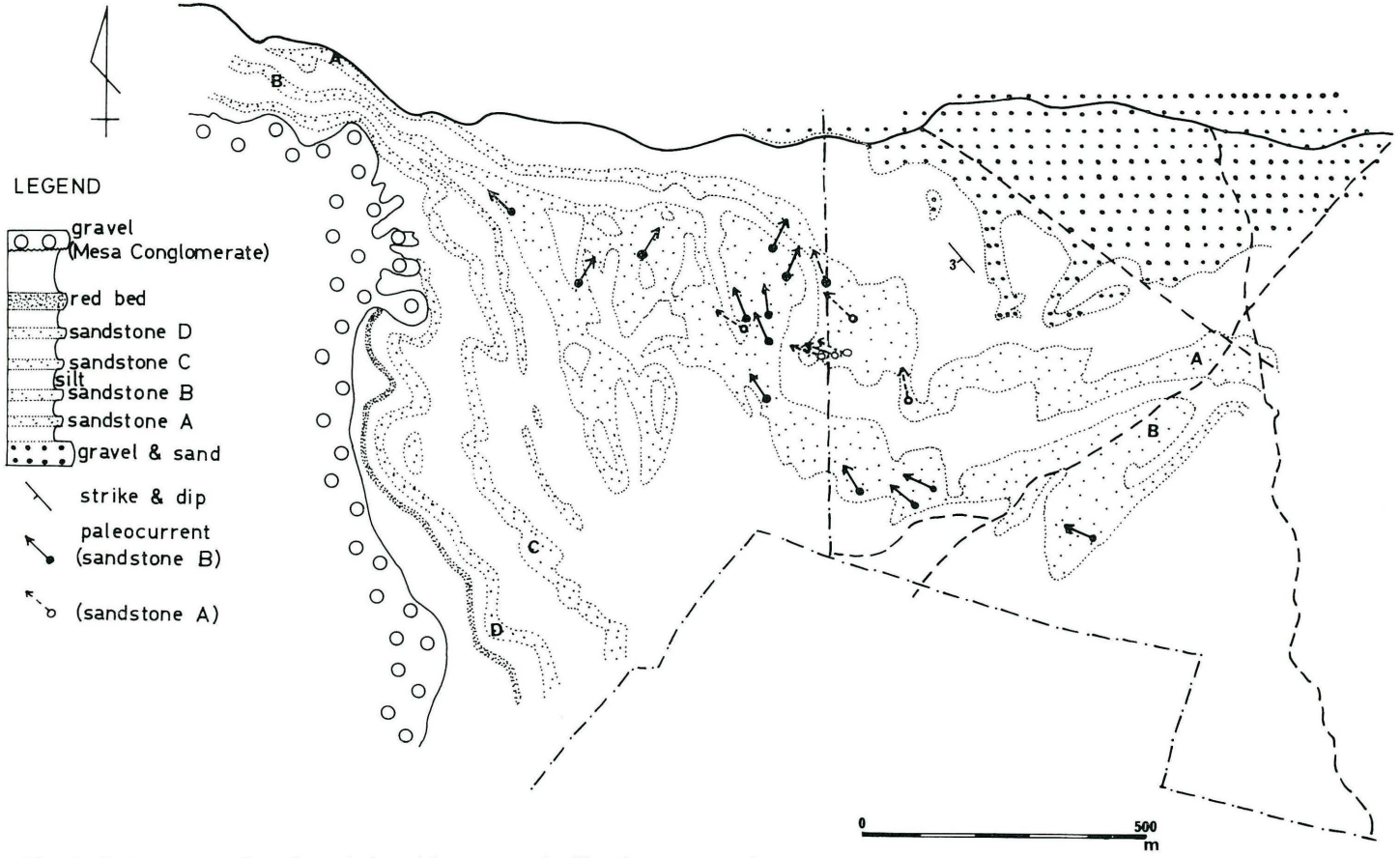

Fig. 5. Paleocurrent directions deduced from torpedo-like shape concretions.

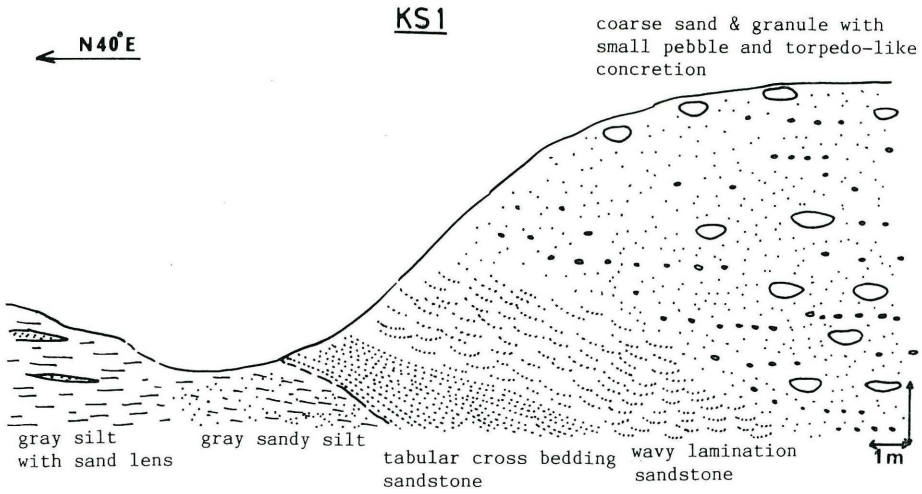

Fig. 6. Skech at Loc. KS 1.

data and observations indicate that sediments including sandstone A and B were deposited under braided river environment, and that deposits including dentitions of fossil monkey are point bar sediments.

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